## Claims

What is claimed is:

1. A system for storing spent nuclear fuel comprising:

a body having a cavity for receiving and storing a spent fuel canister, a major portion of the body positioned below grade;

the body having at least one inlet ventilation duct extending from an above grade inlet to a below grade outlet in the cavity.

2. The system of claim 1 wherein the above grade inlet is in a side wall of the body.

3. The system of claim 2 wherein the below grade outlet is at or near a bottom of the cavity.

4. The system of claim 3 wherein the inlet ventilation duct is an elongated substantially S-shape.

5. The system of claim 1 wherein the number of inlet ventilation ducts in the body is two.

6. The system of claim 5 wherein the above grade inlets of the two inlet ventilation ducts are on opposing side walls of the body.

7. The system of claim 1 wherein at least a portion of the inlet ventilation duct is insulated from the body.

8. The system of claim 1 wherein at least a portion of the cavity is insulated from the body.

9. The system of claim 1 further comprising a shell lining the cavity.

10. The system of claim 1 wherein the inlet ventilation duct and the cavity are hermetically sealed to the ingress of below grade liquids.

11. The system of claim 10 wherein the shell and the inlet ventilation duct are made of steel, the shell and inlet the ventilation duct connected by welding.

12. The system of claim 11 further comprising a steel bottom plate integral to the shell and the inlet ventilation duct..

13. The system of claim 1 wherein the body is made of concrete.

14. The system of claim 1 further comprising means to support a canister on a bottom surface of the cavity, the support means providing an air plenum between a canister of spent nuclear fuel and the bottom surface of the cavity when the canister is placed in the cavity for storage.

15. The system of claim 14 wherein the support means are one or more support blocks.

16. The system of claim 15 wherein the support blocks are circumferentially spaced.

17. The system of claim 16 wherein the support blocks are made of steel or another weldable metal.

18. The system of claim 1 further comprising a lid positioned atop the body and covering the cavity.

19. The system of claim 18 wherein when a spent fuel canister is positioned in the cavity, an air plenum exists between the canister and the lid.

20. The system of claim 18 wherein the lid comprises a shear ring, the shear ring protruding into the cavity when the lid is positioned atop the body.

21. The system of claim 18 wherein the lid comprises at least one outlet ventilation duct for allowing heated air to exit the cavity.

22. The system of claim 21 wherein the outlet ventilation extends horizontally though a side wall of the lid.

23. The system of claim 22 wherein the outlet ventilation duct in the lid is circumferentially and azimuthally separated from the above grade inlet of the inlet ventilation duct in the body.

24. The system of claim 1 further comprising a base on which the body is positioned.

25. The system of claim 24 wherein the base is a concrete slab.

26. The system of claim 1 wherein approximately 6 to 36 inches of the body's height is above grade.

27. The system of claim 1 further comprising a vent screen covering the above grade inlet of the inlet ventilation duct.

28. The system of claim 1 wherein the cavity and the inlet ventilation duct are formed by an integral steel lining and the body is formed of concrete.

29. The system of claim 1 wherein a major portion of the cavity's height is below grade.

30. The system of claim 1 further comprising at least one outlet ventilation duct for allowing heated air to exit the cavity.

31. A method of storing spent nuclear fuel comprising:

providing a system according to claim 1;

lowering a spent fuel canister into the cavity so that a major portion of the canister is below grade; and

placing a lid atop the body so as to enclose the cavity, the lid having at least one outlet ventilation duct for allowing heated air to exit the cavity;

wherein ventilation of the canister is provided by cold air entering the cavity through the inlet ventilation duct in the body, the cold air being heated within the cavity by the spent nuclear fuel, and warm air exiting the cavity through the outlet ventilation duct in the lid.